

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

**SCHEDULE 13G**

**Under the Securities Exchange Act of 1934**

**(Amendment No. 4)\***

AerCap Holdings N.V.

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(Name of Issuer)

Ordinary Shares

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(Title of Class of Securities)

N00985106

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(CUSIP Number)

May 31, 2010

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(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 (the "Act") or otherwise subject to the liabilities of that section of the Act, but shall be subject to all other provisions of the Act (however, see the Notes.)

1. NAMES OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY)
- Wellington Management Company, LLP  
04-2683227
2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP
- (a)   
(b)
3. SEC USE ONLY
4. CITIZENSHIP OR PLACE OF ORGANIZATION
- Massachusetts
- |               |                             |            |
|---------------|-----------------------------|------------|
| NUMBER OF     | 5. SOLE VOTING POWER        | 0          |
| SHARES        | 6. SHARED VOTING POWER      | 9,379,295  |
| BENEFICIALLY  | 7. SOLE DISPOSITIVE POWER   | 0          |
| OWNED BY EACH | 8. SHARED DISPOSITIVE POWER | 12,894,317 |
| REPORTING     |                             |            |
| PERSON WITH   |                             |            |
9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
- 12,894,317
10. CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES
- 
11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
- 10.80%
12. TYPE OF REPORTING PERSON
- IA
-

**Item 1.**

- (a) **Name of Issuer**  
AerCap Holdings N.V.
- (b) **Address of Issuer's Principal Executive Offices**  
Stationsplein 965  
1117 CE Schiphol  
Amsterdam, The Netherlands

**Item 2.**

- (a) **Name of Person Filing**  
Wellington Management Company, LLP ("Wellington Management")
- (b) **Address of Principal Business Office or, if None, Residence**  
75 State Street  
Boston, MA 02109
- (c) **Citizenship**  
Massachusetts
- (d) **Title of Class of Securities**  
Ordinary Shares
- (e) **CUSIP Number**  
N00985106

**Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b), or 13d-2(b) or (c), Check Whether the Person Filing is a:**

- (a)  Broker or dealer registered under Section 15 of the Act (15 U.S.C. 78o).
- (b)  Bank as defined in Section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c)  Insurance Company as defined in Section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d)  Investment Company registered under Section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8).
- (e)  An investment adviser in accordance with Rule 240.13d-1(b)(1)(ii)(E);
- (f)  An employee benefit plan or endowment fund in accordance with Rule 240.13d-1(b)(1)(ii)(F);
- (g)  A parent holding company or control person in accordance with Rule 240.13d-1(b)(1)(ii)(G);
- (h)  A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i)  A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j)  Group, in accordance with Rule 240.13d-1(b)(1)(ii)(J).

If this statement is filed pursuant to Rule 13d-1(c), check this box

**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) **Amount Beneficially Owned:**  
Wellington Management, in its capacity as investment adviser, may be deemed to beneficially own 12,894,317 shares of the Issuer which are held of record by clients of Wellington Management.
- (b) **Percent of Class:**  
10.80%
- (c) **Number of shares as to which such person has:**
- |   |           |
|---|-----------|
| (i) sole power to vote or to direct the vote                | 0         |
| (ii) shared power to vote or to direct the vote             | 9,379,295 |
| (iii) sole power to dispose or to direct the disposition of | 0         |

**Item 5. Ownership of Five Percent or Less of Class.**

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following: [ ]

**Item 6. Ownership of More than Five Percent on Behalf of Another Person.**

The securities as to which this Schedule is filed by Wellington Management, in its capacity as investment adviser, are owned of record by clients of Wellington Management. Those clients have the right to receive, or the power to direct the receipt of, dividends from, or the proceeds from the sale of, such securities. No such client is known to have such right or power with respect to more than five percent of this class of securities, except as follows:

Not Applicable.

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company.**

Not Applicable.

**Item 8. Identification and Classification of Members of the Group.**

Not Applicable.

**Item 9. Notice of Dissolution of Group.**

Not Applicable.

**Item 10. Certification.**

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

By: /s/ Robert J. Toner

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Name: Robert J. Toner

Title: Vice President

Date: June 10, 2010